Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. (canceled)

12. (canceled)

13. (canceled)

1. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled)

23. (canceled)

24. (original) A method of determining a work function of a plurality of pixels of an electron emissive material, comprising:

providing an array of pixels of a first material on a first substrate, each pixel having at least one different characteristic from any other one of the plurality of pixels; and

measuring the work function of each pixel on the first substrate using a work function measurement device.

25. (original) The method of claim 24, wherein:

the first material comprises a ceramic electron emissive material; and

the work function measurement device comprises a Kelvin probe.

26. (original) The method of claim 25, wherein the at least one characteristic comprises composition or stoichiometry.

27. (original) The method of claim 26, wherein the electron emissive material is selected from a group consisting of:

(a) barium oxide, strontium oxide and calcium oxide;

(b) yttrium oxide and lanthanum oxide; and

(c) $(A_{1-x}, Ca_x)_6 (Ta_{1-y}, W_y)_2 O_{11+y}$, wherein A comprises one of barium or a combination of barium and strontium; $0 \leq x < 0.5$; $0 \leq y < 1$; and at least one of x and y is greater than zero.

28. (original) The method of claim 25, further comprising:

positioning a Kelvin probe tip over a first pixel;

measuring the work function of the first pixel;

moving the first substrate relative to the Kelvin probe tip, such that the Kelvin probe tip is positioned over a second pixel; and

measuring the work function of the second pixel.

29. (original) The method of claim 25, further comprising:

positioning a plurality of Kelvin probe tips over a plurality of respective pixels; and

simultaneously measuring the work function of the plurality of pixels.

30. (original) The method of claim 24, wherein the work function measurement device comprises a scanning tunneling microscope.

31. (original) A Kelvin probe combinatorial testing system, comprising:

a Kelvin probe apparatus;

a first substrate adapted to support a plurality of pixels of a material to be tested, each pixel having at least one different characteristic from any other one of the plurality of pixels; and

a computer electrically connected to the Kelvin probe apparatus containing software which analyzes a work function measured on the plurality of pixels and which provides a visual, electronic or printed output of the work function of each pixel.

32. (original) The system of claim 31, further comprising a plurality of pixels of an electron emissive material to be tested, each pixel having at least one different characteristic from any other one of the plurality of pixels, located on the first substrate.

33. (original) The system of claim 31, further comprising a driver which is adapted to move the first substrate such that a tip of the Kelvin probe is positioned over a particular pixel.

34. (original) The system of claim 31, further comprising a plurality of Kevin probe tips positioned over a plurality of the first substrate locations adapted to support a pixel.

35. (new) A method of making a fluorescent lamp, comprising:

providing an array of pixels of electron emissive material, each pixel having a different composition or stoichiometry than the other pixels of the array, wherein the emissive material comprises $(A_{1-x}, Ca_x)_p (Ta_{1-y}, W_y)_q O_{r+y}$, wherein A comprises one of barium or a combination of barium and strontium, p=2-6; q= 2-6; r=4-12; $0 \leq x < 0.5$; and $0 \leq y < 1$ and each pixel has a different value of at least one of p, q, r, x and y from the other pixels; and

measuring at least one property of each pixel;

identifying a best composition of the electron emissive material for a fluorescent lamp according to the at least one property; and

incorporating the identified electron emissive material into a shell having a phosphor coated inner surface and at least one electrode to form the fluorescent lamp.